

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions and listings of claims in the application.

Listing of Claims:

1 (currently amended). A communication apparatus, comprising:

~~a propagation environment estimating section that estimates reference signal~~
~~generating section that generates a first reference signal to enable a communicating party~~
~~to estimate a propagation environment using a signal transmitted from a communicating~~
~~party ; and~~

a transmitting section that transmits the first reference signal;

a propagation estimating section that estimates a first propagation estimation
value of the propagation environment using a second reference signal transmitted from
the communicating party;

a first data acquiring section that ~~acquires~~ generates first data using ~~an estimation~~
value obtained in the first propagation environment estimating section estimation value;
and

a decoding section that decodes a transmission signal encoded using a second
propagation estimation value that is estimated by the communicating party using the first
reference signal, to obtain second data using the first data.

2 (canceled).

3 (currently amended). The communication apparatus according to claim 1, further comprising:

a coding section that encodes the first propagation estimation value obtained in the propagation ~~environment~~ estimating section,

wherein the first data acquiring section ~~acquires~~ generates the first data from an encoding pattern of the encoded first propagation estimation value ~~eneeded~~.

4 (currently amended). The communication apparatus according to claim 1, further comprising:

a comparing section that compares the first propagation estimation value obtained for each channel in the propagation estimating section with one another when a plurality of channel signals are received,

wherein, based on a comparison result in the comparing section, the first data acquiring section generates ~~acquires~~ the first data.

5 (currently amended). The communication apparatus according to claim 1, further comprising:

a storing section that stores a known ~~reference~~ signal known between the apparatus and the communicating party,

wherein the propagation ~~environment~~ estimating section obtains ~~[[the]]~~ correlation of the known ~~reference~~ signal and the second reference signal and generates a delay profile as the first propagation estimation value, and the first data acquiring section uses a reference table that associates the delay profile with the first data, ~~[[and]]~~ reads out

the first data associated with the delay profile generated in the propagation environment estimating section from the reference table and thereby generates to acquire the first data.

6 (currently amended). The communication apparatus according to claim 5, wherein the first data acquiring section calculates ~~[[the]]~~ convolution of ~~[[the]]~~ auto-correlation ~~function of~~ between the known reference signal and the second reference signal, and a quantization vector stored in the reference table, ~~[[and]]~~ performs metric calculation using the delay profile and the quantization vector subjected to the convolution, ~~and thereby~~ selects a vector code, and thereby generates to acquire the first data.

7 (currently amended). The communication apparatus according to claim 5, wherein the first data acquiring section performs orthogonal conversion on the delay profile generated in the propagation environment estimating section to condense signal components, and ~~acquires~~ generates the first data using the signal components.

8 (currently amended). The communication apparatus according to claim 1, further comprising:

an equalizing section that performs equalizing on a received signal based on the first propagation estimation value obtained in the propagation environment estimating section to acquire the second data.

9 (currently amended). A communication system, comprising:

a first communication apparatus comprising: and
a second communication apparatus that is a communicating party of the first communication apparatus, wherein said first communication apparatus comprises:
a first reference signal generating section that generates a first reference signal;
a transmitting section that transmits the first reference signal;
a first propagation environment control estimating section that estimates controls a first propagation estimation value of a propagation environment using a second reference in transmitting a signal transmitted from the second communication apparatus;
[[and]]
a first acquiring section that generates first data using the first propagation estimation value; and
a transmitting section that transmits the signal in the propagation environment controlled in the propagation environment control section; and
a decoding section that decodes an encoded signal transmitted from the second communication apparatus to obtain second data using the first data; and
the [[a]] second communication apparatus comprising:
a second reference signal generating section that generates the second reference signal;
a [[first]] second propagation estimating section that estimates a second propagation estimation value of the which receives the signal transmitted from the first communication apparatus, and estimates a propagation environment using the received first reference signal; [[and]]

a second first data acquiring section that generates third ~~acquires first data~~
using ~~an estimation value obtained in the first~~ the second propagation environment
~~estimating section~~ estimation value; and
a coding section that encodes the second data and generates the encoded
signal using the third data.

10-12 (canceled).

11 (canceled).

13 (new). A communication method, comprising:

generating, in a first communication apparatus, a first reference signal to enable a
second communication apparatus to estimate a propagation environment between the first
communication apparatus and the second communication apparatus;

transmitting the first reference signal from the first communication apparatus to
the second communication apparatus;

estimating, in the second communication apparatus, a first propagation estimation
value of the propagation environment using the first reference signal;

generating, in the second communication apparatus, first data using the first
propagation estimation value;

encoding second data and generating an encoded signal using the first data in the
second communication apparatus;

estimating, in the first communication apparatus, a second propagation estimation value of the propagation environment using a second reference signal transmitted from the second communication apparatus;

generating third data using the second propagation estimation value; and

decoding the encoded signal transmitted from the second communication apparatus and acquiring the second data, using the third data.